

CLAIMS

WHAT IS CLAIMED

1. (Currently Amended) A read mechanism used in a contact atomic resolution storage system, comprising:
 - a cantilever disposed with a medium which is movable relative to the cantilever, the cantilever having a probe which extends from the cantilever a first distance and which contacts a surface of the medium;
 - ~~a pod formed on a side of the cantilever facing the medium, the pod extending toward the medium; and~~
 - a pod formed circumferentially about and spaced apart from the probe, the pod extending from a side of the cantilever facing the medium and defining a physical space between the pod and the probe along a portion of the first distance; and
 - a sensor element formed on a distal edge of the pod, opposite from the cantilever, so as to juxtapose the medium.
2. (Canceled)
3. (Original) A read mechanism as set forth in claim 1, wherein the pod at least partially encloses the probe.
4. (Currently Amended) A read mechanism as set forth in claim 1, wherein the pod is essentially a continuous annular structure and surrounds at least a portion of the probe.
5. (Original) A read mechanism as set forth in claim 1, wherein the sensor element forms part of a device which is responsive to an electric field between the medium and the cantilever.
6. (Original) A read mechanism as set forth in claim 5, wherein the sensor element forms part of a FET (field effect transistor).
7. (Original) A read mechanism as set forth in claim 6, wherein the FET is a depletion mode FET.
8. (Original) A read mechanism as set forth in claim 6, wherein the FET is an enhancement mode FET.
9. (Canceled)

10. (Original) A read mechanism as set forth in claim 6, wherein one of the probe and the medium is electrically non-conductive, and wherein the medium is supported on a substrate which is electrically conductive, and wherein the substrate is circuited with the FET so that variations in the electrical field which result from the distance between the medium and the cantilever changing, induces a change in electrical current passing through the FET and produces a read signal.
11. (Currently Amended) A read mechanism used in a contact atomic resolution storage system, comprising:
- a cantilever disposed with an electrically non-conductive medium which is movable relative to the cantilever, the cantilever having a probe which extends from the cantilever a first distance and which follows a topography of the medium;
 - ~~a sensor pod which is formed on the cantilever proximate the probe and which extends toward the medium; and~~
 - a sensor pod formed in proximity to and circumferentially about the probe, the pod extending toward the medium and defining at least one physical space between the pod and the probe along a portion of the first distance; and
 - a device formed in the cantilever which responds to a change in distance between the cantilever and a substrate on which the medium is supported.
12. (Original) A read mechanism as set forth in claim 11, further comprising a sensor element formed at a leading end of the pod so as to be oriented toward the medium.
13. (Original) A read mechanism as set forth in claim 11, wherein the device is a FET and wherein the sensor element forms an operative part of the FET.
14. (Currently Amended) A method of making a read mechanism for a contact atomic resolution storage system comprising:
- forming a cantilever having a movable end;
 - forming an annular sensor support extension pod on the cantilever proximate to the movable end, the pod having an edge rising above the surface of the movable end;
 - forming a probe on the cantilever disposed within the annular pod and extending beyond the edge so as to have a predetermined spatial relationship with the pod;
 - orienting the pod and the probe towards a medium which is movable relative to the probe and in which a data indicative topography is formed; adapting the probe to follow a data indicative topography of the medium; and
 - forming a sensor element in a portion of the pod edge ~~sensor support extension pod~~ juxtaposed to the medium.

15. (Original) A method as set forth in claim 14, wherein the step of forming the sensor element comprises forming a FET (Field Effect Transistor) and which further comprises forming the medium on an electrically conductive substrate which is circuited with the FET to produce an electric field.
16. (Original) A method as set forth in claim 15, further comprising forming one of the probe and the medium of an electrically non-conductive material.
17. (Currently Amended) A method of using a read mechanism for a contact atomic resolution storage system comprising:
 - moving a probe ~~supported on a cantilever~~ relative to a medium which has a data indicative topography that is followed by the probe, the probe nested within and extending beyond an upper edge of a generally concentric sensor support extension pod, the probe and the pod supported by a cantilever; and
 - sensing a change in distance between the cantilever and the medium using a change in current flowing through a sensor element formed in ~~a face of a~~ the upper edge of the sensor support extension pod juxtaposed to the medium.
18. (Original) A method as set forth in claim 17, further comprising:
 - using a FET (Field Effect Transistor) as the sensor element formed in the sensor support extension pod; and
 - producing an electric field between a substrate on which the medium is supported and the cantilever.
19. (Canceled)
20. (New) A read mechanism used in a contact atomic resolution storage system comprising:
 - a cantilever having a movable end disposed with a medium which is movable relative to the cantilever;
 - a generally annular pod proximate to the movable end and extending from a side of the cantilever facing the medium, the pod having an edge juxtaposed to the medium;
 - a probe disposed within the annular pod and extending beyond the probe edge to contact a surface of the medium; and
 - a sensor element disposed within the annular pod edge.
21. (New) A read mechanism as set forth in claim 20, wherein the pod has a uniform height.
22. (New) A read mechanism as set forth in claim 20, wherein the pod is a generally continuous structure.
23. (New) A read mechanism as set forth in claim 20, wherein the pod defines a physical space between the pod and the probe along a portion of the first distance.